

Updated as of September 15, 2011

**Exhibit 9**

**Apportionment Assessment of Patent '702**

**Class file redundancy removal**

**Patent Functionality**

- "The '702 patent invention involves pre-processing and packaging class files, including removing duplicate elements." [1]
- "The general idea of the invention is to eliminate code and data duplicated among a plurality of class files (e.g., associated with a particular application), and place only one copy of duplicated code and data in a multi-class file along with the non-duplicated code and data. The invention broadly includes forming a shared table comprising duplicated elements of the class files and obtaining reduced class files." [2]

**Contemporaneous Evidence**

- "We are building an embedded system. It is \*massively\* slower and has \*massively\* less memory than a modern desktop or server computer. . . . We already use too much memory and execute too much code. Embedded is all about doing more with less. If it is not approached that way, you get terrible, slow, unusable systems. It's not pretty. Every cycle of work you do is further reduction of battery life. . . . Smaller, simpler, faster, more reliable wins." [3]

**Benchmarking Evidence**

- Performance benchmark testing completed by Oracle engineer Noel Poore shows as much as 3.3X .dex file size improvement. This translates to at least 22.7 MB of additional storage space and RAM used by Android for the base set of applications. [4]
- Additional testing suggests that dex file size improvement may be as high as 5X. [5]

**Econometric Analysis**

- Willingness to pay analysis provides evidence that consumers value device RAM. The '702 patent enables a reduction in RAM usage, increasing the amount of RAM available to the end user while holding physical RAM constant. [6]
- Consumers are more likely to purchase handsets with more RAM available. [7]
- Analysis suggests patent apportionment of approximately 7%. [8]

**Hardware Cost Calculation**

- Patent impact of 22.7 MB of RAM lost per device, RAM cost of approximately \$.03 per 1 MB, and 2008-2011 Android unit sales of 70 million suggests hardware cost savings of \$47.8 million. This translates to approximately 7% apportionment. [9]

**Conjoint Analysis**

- Analysis suggests that consumers value faster phones. [10]
- Analysis suggests that consumers value phones that can multitask more effectively. [11]

**Opinion**

- 7% apportionment
- Estimated patent damages after U.S. adjustment: \$47.1 million

**Exhibit 9 (continued)**  
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**Class file redundancy removal**

Sources:

- [1] Mitchell Patent Report, p. 34.
- [2] Mitchell Patent Report, p. 190.
- [3] GOOGLE-01-00082292 (8/9/2007 e-mail from Brian Swetland to Andy Rubin, Steve Horowitz, and Hiroshi Lockheimer)
- [4] Cite to Poore Report, Ex. F.
- [5] Poore Email
- [6] See Appendix C.
- [7] See Appendix C.
- [8] See Appendix C.
- [9] Exhibit 15
- [10] See Shugan report.
- [11] See Shugan report.